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EXAMINER

PENDLETON, DIONNE

ART UNIT	PAPER NUMBER
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2615

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07/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/786,502

Applicant(s)

SHENNIB ET AL.

Examiner

Dionne H. Pendleton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 104-126, 128 and 130 is/are pending in the application.
- 4a) Of the above claim(s) n/a is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 104-126, 128 and 130 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim **104-126, 128 and 130** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hanright (U.S. 5,875,254)** in view of **Haroldson (U.S. 6,094,494)** and **Ward (U.S. 5,201,007)**.

Regarding claim 104,

in **figure 2B**, HANRIGHT teaches a canal hearing device including a main module **2** and receiver section **10,18**. Hanright does not clearly teach that the hearing device is adapted for removable connection to a radially flexible and axially rigid sound tube, constructed as specifically claimed.

In **figure 2A and figure 2B**, HAROLDSON teaches, in **column 5, line 6**, a canal hearing device **10** adapted for removable connection to a tubular sound transmission duct **58** via connection to an outwardly extending speaker tube **41** and retaining means **45**. Said sound transmission duct **58**, which corresponds to the "sound conduction tube" of the claim, is for transmitting an audio signal to the wearer's ear canal,

Haroldson does not clearly teach that the sound conduction tube **58** is constructed as specifically claimed.

WARD teaches in **figure 6**, a tubular insert for connection to the receiver section of a hearing device, comprising: a radially flexible sound conduction tube **60** which delivers sound to the tympanic membrane **30**, and is constructed so as to comprise:

A first concentric seal **70** projecting radially from the sound conduction tube **60** for engaging the bony part of the ear canal and forming a first confined space between the seal and tympanic membrane; said seal having a small pressure vent **76** (as shown in **figure 5A**);

and

also shown in **figure 6**, a second concentric seal **82** projecting from the sound tube **60** and forming a second confined space between seals, shown in **figure 7**, said second seal has a relatively larger occlusion relief vent **85** extending there through, also see **column 6, lines 56-60**.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the canal hearing device of Hanright so as to include the outwardly extending speaker tube **41** and retaining means **40** (see *Haroldson*), so as to be respectively connected to an inner sound tube **60** and outer sound tube **82** (see, *Ward*) for the purpose of providing an improved fit for the device within the ear canal, which increases comfort for the wearer, in addition to reducing the occurrence of feedback.

Regarding claim 105,

Haroldson teaches a sound conduction tube which may be selectively replaced.

Regarding claim 106,

in **column 5, lines 9-10**, Ward teaches that the sound tube may be rigid or semi-rigid so that the tube may be inserted into the ear canal and retain its shape, thereby reading on “kink-resistance and non-collapse”, as claimed.

Regarding claim 107,

In **column 6, lines 64-65**, Ward teaches that the device, comprising the sound conduction tube, may have generic configurations and sizes to accommodate a variety of ear canal sized and shapes.

Regarding claim 108,

in **figure 7**, Ward teaches that the sound conduction tubing comprises multiple tubing **60,82** for multiple channel sound conducting or venting via plurality of channels **85**.

Regarding claim 109,

in **column 5, lines 34-36**, Ward teaches that the tip of the sound conduction tubing is 2-8 mm. Therefore Ward teaches that when said tip is 8mm, the tubing, which has a greater length than that of the tip, is at least 8mm in length.

Regarding claim 110,

The combination of Hanright/Haroldson and Ward fails to explicitly teach that the sound conduction tube has an inside diameter not greater than 2mm.

However, it is well known in the art and would have been obvious to use a tube having an inner diameter not greater than 2mm, since the resultant tube is smaller in area, and yet provides sufficient sound level output.

Regarding claim 111,

Ward teaches that the sound conduction tube **60**, which includes seal member **70** with vent holes **76**, is constructed such that audio feedback in the high frequencies is prevented, see **column 6, lines 32-35**, thereby reading on "provide a boost for conducted sounds at the high range of audiometric frequencies."

Regarding claim 112,

Ward teaches that the first concentric seal **70** includes a pressure vent **76** in the form of a hole not greater than 0.5mm (see **column 6, lines 31-32**).

Regarding claim 113,

Ward teaches that the pressure vent **76** is directly on the first concentric seal **70**.

Regarding claim 114,

Ward teaches that the pressure vent **76** is indirectly incorporated along said sound conduction tube **60**.

Regarding claim 115,

in **figure 5B and 5D and 5E**, Ward teaches that the sound conduction tube extends medially past the first seal **70**.

Regarding claim 116,

as shown in **figures 5C**, Ward teaches that the seal is hollow of cylindrical shape.

Regarding claim 117,

Ward teaches that the seals are flanged (**figure 5A**), mushroom shaped (**figure 5E**) or clustered (**figure 7**), as broadly claimed.

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Regarding claim 118,

Ward teaches that the cross-sectional perimeter of said seal is circular, elliptical or oval, as shown in **figures 5A, 5F and figure 7**.

Regarding claim 119,

Ward teaches, in **column 5, lines 32-36**, that the seals have a span of at least 2mm.

Regarding claim 120,

in **column 5, lines 37-39**, Ward teaches the use of materials suitable for use in human body cavities, reading on "antibacterial and anti-microbial".

Regarding claim 121,

The combination of Hanright/Haroldson and Ward fails to explicitly teach that the seals comprise lubricant to facilitate insertion and removal of the tubular insert into and from the ear canal. However, it is well known in the art that ear canals typically contain perspiration and/or earwax, both lubricants. Therefore, Hanright/Haroldson and Ward each inherently teach a lubricant, for facilitating insertion and removal of the tubular insert into and from the ear canal, as claimed.

Regarding claim 122,

in **figure 2**, Haroldson teaches means for removably connecting **45** the sound conduction tube to said receiver section.

Regarding claim 123,

Haroldson teaches that the connecting means comprises a snap-on, threaded, spring-loaded, **pressure-fit**, or side-slide mating mechanism.

Regarding claim 124,

Haroldson teaches a tube connector **41** for coaxial connection of the tubular insert and receiver section.

Regarding claim 125,

Ward teaches that the apparatus is for amplifying sound to the ear, reading on “for hearing enhancement of a hearing impaired wearer”.

Regarding claim 126,

Ward teaches that the sound tube is for connection to a hearing aid **90**, reading on “adapting said tubular insert for audio communications” as broadly claimed.

Regarding claim 128,

in **figure 2B**, HANRIGHT teaches a canal hearing device including a main module **2** and receiver section **10,18**. Hanright does not clearly teach that the hearing device is adapted for removable connection to a radially flexible and axially rigid sound tube, as specifically claimed.

In **figure 2A** and **figure 2B**, HAROLDSON teaches, in **column 5, line 6**, a canal hearing device **10** adapted for removable connection to a tubular sound transmission duct **58** when said receiver module is at least partially inserted into the ear canal, said duct **58** corresponding to “a sound conduction tube”.

Haroldson does not clearly teach that the sound conduction tube **58** is constructed as specifically claimed.

WARD teaches in **figure 6**, a sound conduction tube **60** with at least one appendage **70** on the sound conduction tube **60** to establish a substantially acoustically

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sealed space in which the sound is to be delivered to the tympanic membrane **30**; and another appendage **82** is provided on the sound conduction tube (*see, figure 6 and figure 7*) or on the sound receiver module, for cooperating with said at least one appendage **70** to seal in the ear canal and direct occlusion sounds away from the tympanic membrane *via passageway 85 (also see column 6, lines 56-60)* when said tubular insert is connected to said sound receiver module and worn in the ear canal.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the canal hearing device of Hanright so as to include the outwardly extending speaker tube **41** and retaining means **40** of Haroldson, for respectively connecting to the inner sound tube **60** and outer sound tube **82** of Ward, for the purpose of providing an improved fit for the device within the ear canal , which increases comfort for the wearer, in addition to reducing the occurrence of feedback.

Regarding claim 130,

The combined disclosures of HANRIGHT and HAROLDSON teach an ear canal sound conduction tube comprising a tube portion **60** for connection to a main module of the hearing device when said main module is at least partially inserted into the ear canal of a user in proximity to the eardrum; while WARD teaches a sound conduction tube specifically constructed so as to include means **70** operatively associated with the tube portion **60** for delivering sounds to an acoustically sealed space about the eardrum;

And means **85 and 22'** (*of the Hanright reference*) operatively associated with the tube portion and the hearing device for concurrently directing occlusion sounds away from the ear drum when worn by the user.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the canal hearing device of Hanright so as to include the outwardly extending speaker tube **41** and retaining means **40** of Haroldson, for respectively connecting to the inner sound tube **60** and outer sound tube **82** of Ward, for the purpose of providing an improved fit for the device within the ear canal , which increases comfort for the wearer, in addition to reducing the occurrence of feedback.

Response to Arguments

2. Applicant's arguments filed 6/15/2007 have been fully considered but they are not persuasive.

3. Regarding the Applicant's argument that **Tube "82" Of The Ward Reference Is Not A Seal:**

Figure 6 in the Ward reference illustrates a flush positional arrangement between the ear canal of the wearer and the tube **82**. Also, see **col. 6, ln 43-45 and 56-60**, wherein the passage suggests that the support provided to tube **60** via support members **90** is such that the support members **90** are not movable so as to block the vent passages **85**. This implies a flush and sealing arrangement between the tube **82** and the ear canal walls, since the tube **82** will only insure that support member **90** will not vary in location, if it is positioned within the ear canal in an anchored i.e., sealing manner. Also, note that the outer periphery of tube **82** is continuous and does not include any apertures or corrugations, thereby adding to the "seal" properties.

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4. Regarding the Applicant's argument that **Ward Fails To Teach That Tube "82" Includes Means For Concurrently Directing Occlusion Sounds Away From The Eardrum:**

In **column 6, lines 56-60**, Ward teaches "...the occlusion effect is prevented by venting bone-conducted low frequency sounds out of the ear canal, through passageway **85** in this embodiment." The appropriateness of reliance upon the disclosure of Ward, is therefore maintained.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne H. Pendleton whose telephone number is 571-272-7497. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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